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Remote Controller car set 8238-49TR
Functional Description

The EUT comprises a radio controller and a radio control car while the controller is used to control the car by means of transmitting a radio frequency signal in a simplex mode.

The controller –
The controller comprises a rf generation circuit and a modulation circuit.

In the rf generation circuit, rf frequency carrier is generated continually by a crystal oscillating at 49.860 MHz when the power is switched on. However the rf signal will not further transmit forward to second stage for amplification and radiates via antenna matching network until there is presence of a modulating signal (the control signal).

In the modulation circuit, modulating signal is generated by an encoder IC. By changing the values of the variable resistors on the controller, control signal in analogue level will be set at the different input pins of the IC, A to D converting process is carried out inside IC and a series of digital data bits will be generated. The level of data bits are high enough to switch on and off (ON/OFF keying) a control gate allowing the rf carrier to pass through to next stage for amplification and hence radiates to atmosphere via the antenna network.

Three different algorithm for coding are available by selecting the ABC switch of the controller, which allows three different sets of control signals to be transmitted at same time and in the same frequency, and hence three controllers can control three cars at the same time without interfering each other.

Antenna is a telescopic design. The controller is powered by a 9V dry battery. No supply ground or signal ground is available.

The radio control car (receiver) –
The receiver comprises a rf super re-generation circuit, a demodulation and a decoding circuit.

When a considerable rf signal in the desired rf frequency band appears at the pre-tuned receiving antenna network, it triggers the re-generation circuit (resonation occurs) to activate and generate a higher voltage level in same frequency and enough for demodulation and decoding processing.

In the demodulation circuit, the coded rf carrier is filtered out leaving series of digital data bits (pulses), the data bits are then fed into the decoding IC for D to A (decoding) signal processing. Output analogue signals from the decoder IC are to drive the driving and steering mechanism of the car, feedback signal in form of analogue levels are returned from variable resistor mechanically driven by the steering arms for further comparison and processed in the IC to implement a proportional steering function.

Three different algorithm for decoding are available by selecting the ABC switch on the receiver, which allows three different sets of control signals to be processed at same time and in the same frequency, and hence three cars can be controlled at the same time without being interfered.

Receiving antenna is a flex wire type. Receiver is powered by a 9.6V rechargeable battery pack. No supply ground or signal ground is available.